

Abstract Submitted  
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**Spectral dependence of thermal radiation from metallic nanowires on wire geometry** YAT-YIN AU, HELGI SKULI SKULASON, SNORRI INGVARSSON, Science Institute, University of Iceland, Dunhaga 3, Reykjavik IS-107, Iceland, LEVENTE J. KLEIN, HENDRIK F. HAMANN, IBM TJ Watson Research Center, Yorktown Heights, NY 10598 — We report polarization-sensitive thermal radiation measurements of individual platinum nanoheaters (nanowires) as a function of their length, width and temperature. The heaters confine lateral extent of the resistively heated area to dimensions smaller or comparable to the emission wavelengths within our sensitivity range (2-5  $\mu\text{m}$ ). Spectra taken by Fourier Transform Infrared Spectrometry reveal strong suppression of radiation polarized perpendicular to the heater long axis as the heater width shrinks, while at the same time radiation polarized along the long axis of the heater approaches a constant value, resulting in highly polarized emission for heaters with very narrow width. We also observe a  $\lambda/2$ -like resonance that we believe is associated with surface plasmon oscillations across the heater width. These findings have important implications for nanoscale thermal light generation.

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